

Support for the amendments to claim 58 are found throughout the specification, for example on page 9, lines 1-18; page 11, lines 20-24; page 17, line 15; and page 21, lines 10-29. Support for newly added claim 68 is found in the specification on page 11, lines 24-31. Support for newly added claim 69 is found in the specification on page 11, line 29 and page 21, line 36, through page 22, line 2. Support for newly added claim 70 is found in the specification on page on page 36, lines 13-21. Support for claim 71 is found on page 20, line 29 of the specification. Claims 68-71 are added to further define claim scope.

Because the foregoing amendments do not introduce new matter, entry thereof by the examiner is respectfully requested.

Issues Under Information Disclosure Statement (IDS)

The Examiner states that Applicants' IDS received April 5, 2001 has been considered in part, i.e. U.S. Patents. However, the Examiner states that references A3-A76 were not in parent application 09/425,890 and requests copies of these documents. Attached herewith are copies of references A3-A46 and A48-A76. A copy of A47 will be provided in the near future. Also attached is a copy of the Form PTO-1449 submitted with the IDS filed on April 5, 2001. Applicants respectfully request that any listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of the enclosed Form PTO-1449 be returned in accordance with MPEP § 609.

Claim Objections

Claim 53 is objected to by the Examiner because the claim contains an improper Markush group. Applicants have amended claim 53 by replacing "or" with --and--. Applicants respectfully request withdrawal of the rejection.

Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 59, 61 and 62 are rejected by the Examiner under 35 U.S.C. § 112, second paragraph for being indefinite. Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner asserts that in claims 59, 61 and 62, there is insufficient antecedent basis for the term "said solvent" in line one. Applicants respectfully disagree because there is antecedent basis for the term "said solvent". However, in order to expedite prosecution, Applicants have amended claims 59, 61 and 62 to recite "said non-toxic solvent".

Allowable Subject Matter

The Examiner asserts that claims 48-57 are free from the prior art because the prior art does not disclose or fairly suggest Applicants' claimed method.

Claim Rejections - 35 U.S.C. § 102

A. Claims 58, 59, 62 and 63 are rejected by the Examiner under 35 U.S.C. § 102 as being anticipated by Jones et al. (U.S. Patent No. 5,158,656). Applicants respectfully request reconsideration and withdrawal of the rejection.

The present claims, as amended, are directed to a method of making a food product comprising extracting glucosinolates and isothiocyanates from plant tissue rich in glucosinolates, recovering the glucosinolates and isothiocyanates, and adding the glucosinolates and isothiocyanates to a food. The extracting step involves contacting said plant tissue with a non-toxic solvent at a temperature sufficient to inactivate myrosinase enzyme activity. Jones et al. is directed toward a process for producing a protein concentrate for a dehulled, defatted oleaginous thioglucoside and phenolic containing seed material. The two methods are different from one another because while the method of the present invention involves recovering glucosinolates and isothiocyanates and adding the recovered materials to food, the method of Jones et al. involves removing glucosinolates and other materials from oilseeds in order to recover a nutritious protein concentrate that is free of these materials. Therefore, the method of Jones et al. comprises completely different steps and results in a completely different product than the presently claimed method.

Furthermore, Jones et al. teaches away from the presently claimed method. The present specification teaches that most of the Phase 2 inducer potential of crucifer plants is due to their content of isothiocyanates and their biogenic precursors, glucosinolates. See page 15, lines 3-6.

Thus, the present method is directed to recovering glucosinolates and isothiocyanates and adding these compounds to food. In contrast, in column 1, lines 7-13 of Jones et al., it states that “certain oilseeds...contain thioglucosides (glucosinolates) which, by means of endogenic enzymes, e.g. myrosinases, are split into the deleterious substances isothiocyanates and/or oxazolidinethiones, and glucose and bisulphate.” In column 3, lines 40-44, Jones et al. states “The glucosinolates contained in rapeseed are, as is well known, hydrolyzed by myrosinase under the appropriate conditions to isothiocyanates, nitriles and oxazolidinethiones some of which are known to cause goiter.” Jones et al. also states at column 3, lines 48-53 that “it is essential for food use, to remove the glucosinolates and those other factors that can cause unattractive flavor and coloration and decreased nutritive value of foods.” Therefore, the present invention is not anticipated by Jones et al. because the method of Jones et al. removes glucosinolates to yield a nutritious protein extract, while the present invention recovers the glucosinolates and adds them to food. Additionally, Jones et al. teaches away from the present invention.

B. Claims 58, 59 and 63 are rejected by the Examiner under 35 U.S.C. § 102 as being anticipated by Anjou et al. (U.S. Patent No. 4,083,836). Applicants respectfully request reconsideration and withdrawal of the rejection.

The method of Anjou et al. is directed toward preparing an edible protein concentrate which is non-toxic and has an acceptable light color and a neutral bland flavor. As discussed above with respect to Jones et al., the method of Anjou et al. differs from the presently claimed method because while the method of the present invention involves recovering glucosinolates and isothiocyanates and adding the recovered materials to food, the method of Anjou et al. involves removing glucosinolates and other materials from seeds of Brassica species in order to recover a nutritious protein concentrate that is free of these materials. Therefore, the method of Anjou et al. comprises completely different steps and results in a completely different product than the presently claimed method.

Furthermore, as discussed above with respect to Jones et al., Anjou et al. teaches away from the presently claimed method. Anjou et al. emphasizes the necessity of removing

glucosinolates from seeds of Brassica species in order to produce a protein concentrate “which is non-toxic, has an acceptable light color, a neutral and mild flavor and a high nutritional value and which thus is well suited for human consumption.” See column 1, lines 8-11. In column 1, lines 21-28, Anjou et al. discusses the drawbacks of prior art oil extractions which contained “glucosinolates, which could be split into deleterious compounds with pungent flavor.” Anjou et al. therefore teaches away from the present method by emphasizing the necessity of removing glucosinolates from Brassica seeds in order to produce a non-toxic protein concentrate that is suited for human consumption. Therefore, the present invention is not anticipated by Anjou et al. because the method of Anjou et al. removes glucosinolates to yield a nutritious protein extract that is free of glucosinolates, while the present invention recovers the glucosinolates and adds them to food. Additionally, Anjou et al. teaches away from the present invention.

Claim Rejections - 35 U.S.C. § 103

Claim 60 is rejected by the Examiner under 35 U.S.C. § 103 as being unpatentable over Anjou et al. The Examiner asserts that while Anjou et al. does not disclose that the temperature of the leach water is 100° C, it would have been obvious to one of ordinary skill in the art to further modify the leaching method of Anjou et al. such that the temperature is effective to result in optimum extraction of glucosinolates from the seed material, since Anjou et al. establish that the glucosinolate leaching process is temperature dependent. Applicants respectfully request reconsideration and withdrawal of the rejection.

A proper rejection for obviousness under §103 requires consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition, or device, or carry out the claimed process and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure. [emphasis added] *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the pending case, the examiner has failed to establish a *prima facie* case of obviousness. As discussed above, Anjou et al. teaches away from the present. The present specification teaches that most of the Phase 2 inducer potential of crucifer plants is due to their content of isothiocyanates and their biogenic precursors, glucosinolates. See page 15, lines 3-6. Thus, the present method is directed to recovering glucosinolates and isothiocyanates and adding these compounds to food. In contrast, the method of Anjou et al. involves removing glucosinolates to produce a protein concentrate that is suitable for human consumption. Anjou et al. emphasizes the necessity of removing glucosinolates from seeds of Brassica species in order to produce a protein concentrate “which is non-toxic, has an acceptable light color, a neutral and mild flavor and a high nutritional value and which thus is well suited for human consumption.” See column 1, lines 8-11. In column 1, lines 21-28, Anjou et al. discusses the drawbacks of prior art oil extractions which contained “glucosinolates, which could be split into deleterious compounds with pungent flavor.” Because Anjou et al. teaches a method that is completely opposite to the teachings of the present specification, Anjou et al. would not have suggested to those of ordinary skill in the art that they should carry out the claimed process. Additionally, Anjou et al. would not have provided a reasonable expectation of success in carrying out the method of the present invention because Anjou et al. emphasizes the necessity of removing glucosinolates from seeds of Brassica-species because of their potentially toxic breakdown products and pungent flavor. Therefore, claim 60 is not obvious over Anjou et al.

Recent Decisions by the United States Court of Appeals for the Federal Circuit

In compliance with MPEP 2001.06(c), attached, as Exhibit 1, is a copy of a decision by the Court of Appeals for the Federal Circuit for In re Cruciferous Sprout Litigation. This decision has no impact on the validity of the claims presented herein. The prior art does not teach or suggest a method of making a food product comprising extracting glucosinolates and isothiocyanates from plant tissue.

CONCLUSION


As the above-presented amendments and remarks address and overcome all of the rejections presented by the examiner, withdrawal of the rejections and allowance of the claims are respectfully requested.

If the examiner has any questions concerning this application, he or she is requested to contact the undersigned.

Respectfully submitted,

Date October 22, 2002

FOLEY & LARDNER
Washington Harbour
3000 K Street, N.W., Suite 500
Washington, D.C. 20007-5109
Telephone: (202) 672-5483
Facsimile: (202) 672-5399

By  _____

Richard C. Peet
Attorney for Applicant
Registration No. 35,792

Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge Deposit Account No. 19-0741 for any such fees; and applicant(s) hereby petition for any needed extension of time.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

58. (Amended) A method of making a food product comprising extracting glucosinolates and isothiocyanates from plant tissue [rich in] having a high concentration of glucosinolates, [with the exception of cabbage, cress, mustard and radish sprouts, comprising homogenizing said plant tissue in a non-toxic solvent at a temperature sufficient to inactivate myrosinase enzyme activity] recovering said glucosinolates and isothiocyanates and adding said glucosinolates and isothiocyanates to food;

wherein said extracting comprises contacting said plant tissue with a non-toxic solvent at a temperature sufficient to inactivate myrosinase enzyme activity.

59. (Amended) The method according to claim 58, wherein said non-toxic solvent is water.

61. (Amended) The method according to claim 58, wherein said non-toxic solvent is liquid carbon dioxide.

62. (Amended) The method according to claim 58, wherein said non-toxic solvent is ethanol.